CIVIL QUALITY
CONSULTANTS & ENGINEERS
ISO 9001:2015 Certified & NABL Accredited
Laboratory as per ISO/IEC - 17025-2017

Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

JobNo: CQCE/BBMP/SSK/16/2022-2023 Date 01.04.2022

GRADATION FOR GSB (Grading V)

Client : **: Assistant Executive Engineer,** Yeshwanthpura Sub Division, BBMP,Bangalore.
Agency: **: Sri. S Santosh kumar,** Contractor, Bangalore.
Name of work: : Filling of potholes and road cut portion in ward no. 16, Jalahalli for the year 2021-22, BBMP, Bangalore.
BIS Code: IS 2386 Part (1):1963
IS 2720 part (5):1985
Date of Testing 30.03.2022 to 01.04.2022

Oven Dry Wt (gm) : 13000

TABLE – 1

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirements as per MORTH 5th edition table 400.1
75	0	0	0.00	100	100
53	1822	1822	14.02	85.98	80-100
26.5	2369	4191	32.24	67.76	55-90
9.5	2248	6439	49.53	50.47	35-65
4.75	1756	8195	63.04	36.96	25-50
2.36	2658	10853	83.48	16.52	10-20
0.85	1459	12312	94.71	5.29	2-10
0.425	221	12533	96.41	3.59	0-5

Table 2

Sl. No.	Particulars	Test Results	Requirements as per MORTH 5th edition table 400.2
1	Liquid Limit, %	23.50	25.0% Maximum.
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

Remarks: Satisfies MORTH Specifications as per Table 400-1, Grading V

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For CIVIL QUALITY CONSULTANTS & ENGINEERS

Authorised Signatory

Corporate Off.: No. 133, Bhuvaneshwarinagar, Doddabasti Main Road, Bangalore-560 056.
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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: CQCE/BBMP/SSK/16/2022-2023 Date : 09.04.2022

GRADATION FOR WMM

Client : **Assistant Executive Engineer,** Yeshwanthpura Sub Division, BBMP,Bangalore.
Agency : **Sri. S Santosh kumar,** Contractor, Bangalore.
Name of Work : Filling of potholes and road cut portion in ward no. 16, Jalahalli for the year 2021-22, BBMP, Bangalore.
IS Code: : IS 2386 (Part 1):1963(RA 2011)
Date of Testing 09.04.2022
Material Type : Wet Mix Macadam

Oven Dry.Wt, grar 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	165	165	1.7	98.4	95-100
22.4	2659	2824	28.2	71.8	60-80
11.2	2247	5071	50.7	49.3	40-60
4.75	1658	6729	67.3	32.7	25-40
2.36	1245	7974	79.7	20.3	15-30
0.600	521	8495	85.0	15.1	8-22
0.075	1023	9518	95.2	4.8	0-5

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Job No.: CQCE/BBMP/SSK/16/2022-2023

Date: 09.04.2022

Aggregate Impact Value

Client	**: Assistant Executive Engineer,** Yeshwanthpura Sub Division, BBMP,Bangalore.
Agency	**: Sri. S Santosh kumar,** Contractor, Bangalore.
Name of the Work	: Filling of potholes and road cut portion in ward no. 16, Jalahalli for the year 2021-22, BBMP, Bangalore.
IS Code	IS 2386 (Part 4):1963(RA 2011)
Type of Mix	Wet Mix macadam
Date of Testing	09.04.2022

Sl No.	Details	Test No. 1	Test No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	387	389	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	82	84	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	305	305	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	21.19	21.59	**21.39**

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%(As per MORTH Specication table 400.12)

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Job No.: CQCE/BBMP/SSK/16/2022-2023 Date : 09.04.2022

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	: **Assistant Executive Engineer,** Yeshwanthpura Sub Division, BBMP,Bangalore.
Agency	: **Sri. S Santosh kumar,** Contractor, Bangalore.
Name of Work	: Filling of potholes and road cut portion in ward no. 16, Jalahalli for the year 2021-22, BBMP, Bangalore.
BIS code:	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	09.04.2022

Sl no	Test	1	2	Requirements as per MORTH 5th edition table no 400.12
1	Flakiness Index %	11.2	13.1	Combined Flakiness & Elongation index Max 35%
2	Elongation Index %	10.3	12.5	
	Combined Flakiness & Elongation index	21.50	25.6	

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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: CQCE/BBMP/SSK/16/2022-2023

Date 11.04.2022

ATTERBERG LIMITS TEST FOR WMM

Client : **Assistant Executive Engineer,** Yeshwanthpura Sub Division, BBMP,Bangalore.
Agency : **Sri. S Santosh kumat,** Contractor, Bangalore.
Name of Work : Filling of potholes and road cut portion in ward no. 16, Jalahalli for the year 2021-22, BBMP, Bangalore.
IS Code: IS 2720(Part 5):1985
Date of Testing 09.04.2022 to 11.04.2022
Material Type : Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	22.00	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No: CQCE/BBMP/SSK/16/2022-2023

Date: 25.04.2022

TEST REPORT ON PAVING BITUMEN

Client	**: Assistant Executive Engineer,** Yeshwanthpura Sub Division, BBMP,Bangalore.
Agency	**: Sri. S Santosh kumar,** Contractor, Bangalore.
Name of work	: Filling of potholes and road cut portion in ward no. 16, Jalahalli for the year 2021-22, BBMP, Bangalore.
BIS Code	IS 73:2013,IS 1203:1978, IS 1208:1978, IS 1205:1978, IS1448(P-69):1969
Date of Testing	**25.04.2022**
Type of Mix	**Seal Coat, VG 30**
Source of Location	**Hot Mix Plant**

The results of the tests conducted on the bitumen sample using for Seal Coat

Sl.No	Description	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 0C, 100gms, 5sec, 1/10 mm	64	Min 45
2	Softening point, 0C	47	Min 47
3	Ductility at 250C, cm	98	Min40
4	Flash Point, 0C	227	Min 220

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JobNo: CQCE/BBMP/SSK/16/2022-2023

Date: 25.04.2022

TEST RESULTS OF AGGREGATE IMPACT VALUE

Client : **Assistant Executive Engineer,** Yeshwanthpura Sub Division, BBMP,Bangalore.

Agency : **Sri. S Santosh kumar,** Contractor, Bangalore.

Name of work : Filling of potholes and road cut portion in ward no. 16, Jalahalli for the year 2021-22, BBMP, Bangalore.

Source / Location : Hot Mix Plant, Bangalore

BIS Code : IS 2386 Part (4):1963

Type of Mix :Seal Coat

Date of test 25.04.2022

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W1 g	382	384	
2	Weight of agregate passing 2.36 mm sieve after the test = W2 g	87	89	
3	Weight of aggregate retained 2.36 mm sieve after the test = W3 g	295	295	
5	Aggregate Impact value = percent fines 100* (W2/W1) percent	22.77	23.18	22.98

Comments:

→ Maximum allowable Aggregate Impact value for Seal Coat Macadam is 27% (Table 500-8 of MORTH specification)

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JobNo: CQCE/BBMP/SSK/16/2022-2023

Date 25.04.2022

TEST RESULTS OF AGGREGATE SHAPE TEST
(Flakiness & Elongation)

Client : **Assistant Executive Engineer,** Yeshwanthpura Sub Division, BBMP,Bangalore.
Agency : **Sri. S Santosh kumar,** Contractor, Bangalore.
Name of work : Filling of potholes and road cut portion in ward no. 16, Jalahalli for the year 2021-22, BBMP, Bangalore.
BIS Code : IS 2386 Part (1):1963
Date of Test 25.04.2022
Type of Mix : Seal Coat

Sl.No.	Flakiness Index Value(%)	Elongation Index Value(%)	Total(Combined Flakiness and Elongation)(%)	Requirements
1	10.50	11.20	21.70	Maximum allowable Combined Flakiness and Elongation Indices for Seal Coat is 35% as per Table 500.8 MORTH Specification.
2	13.60	12.40	26.00	

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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: CQCE/BBMP/SSK/16/2022-2023

Date: 27.04.2022

Specific Gravity And Water Absorption Test

Client	**: Assistant Executive Engineer,** Yeshwanthpura Sub Division, BBMP,Bangalore.
Agency	**: Sri. S Santosh kumar,** Contractor, Bangalore.
Name of the Work	: Filling of potholes and road cut portion in ward no. 16, Jalahalli for the year 2021-22, BBMP, Bangalore.
BIS Code	IS 2386(Part 3):1963
Type of Mix	Seal Coat
Date of Testing	25.04.2022 to 27.04.2022

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2023	2025	2027	
2	Weight of basket suspended in water	W_2 g	754	754	754	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1269	1271	1273	
4	Weight of saturated surface dry aggregate in air	W_3 g	2011	2013	2015	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	742	742	742	
6	Weight of oven dried aggregate	W_4 g	2001	2003	2004	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.697	2.699	2.701	2.699
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.734	2.736	2.741	2.737
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.50%	0.50%	0.55%	0.52%

Comments:

→ Maximum allowable Aggregate Water absorption value for Seal Coat is 2.0%(As per MORTH table 500.8)

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Job No.: CQCE/BBMP/SSK/16/2022-2023 Date: 25.04.2022

Aggregate Gradation Test

Client	**: Assistant Executive Engineer,** Yeshwanthpura Sub Division, BBMP,Bangalore.
Agency	**: Sri. S Santosh kumar,** Contractor, Bangalore.
Name of the Work	: Filling of potholes and road cut portion in ward no. 16, Jalahalli for the year 2021-22, BBMP, Bangalore.
BIS Code	IS 2386(Part 1):1963(RA 2011)
Sample I / D	Hot mix Plant, Bangalore.
Type of Mix	Seal Coat
Date of Testing	25.04.2022

Total Weight of Sample: **5000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 511.2.2
11.20	0	0.0	0	100	100
2.36	5000	100.0	100.00	0.00	0
Pan	0	0.0	100.00	0.00	–

Total Weight of Sample: **5000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 511.2.2
11.20	0	0.0	0	100	100
2.36	5000	100.0	100.00	0.00	0
Pan	0	0.0	100.00	0.00	–

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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: CQCE/BBMP/SSK/16/2022-2023

Date: 28.04.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF SEAL COAT
AASHTO T 164 & AASHTO T 30

Client	**: Assistant Executive Engineer,** Yeshwanthpura Sub Division, BBMP,Bangalore.
Agency	**: Sri. S Santosh kumar,** Contractor, Bangalore.
Name of the Work	: Filling of potholes and road cut portion in ward no. 16, Jalahalli for the year 2021-22, BBMP, Bangalore.
Date of Testing	28.04.2022

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	473.4	473.1
3. Weight of Asphalt and Mineral matter Extracted, g	-	8
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	26.60	26.90
7. Bitumen content in %	5.32	5.38
8. Average	**5.35**	

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